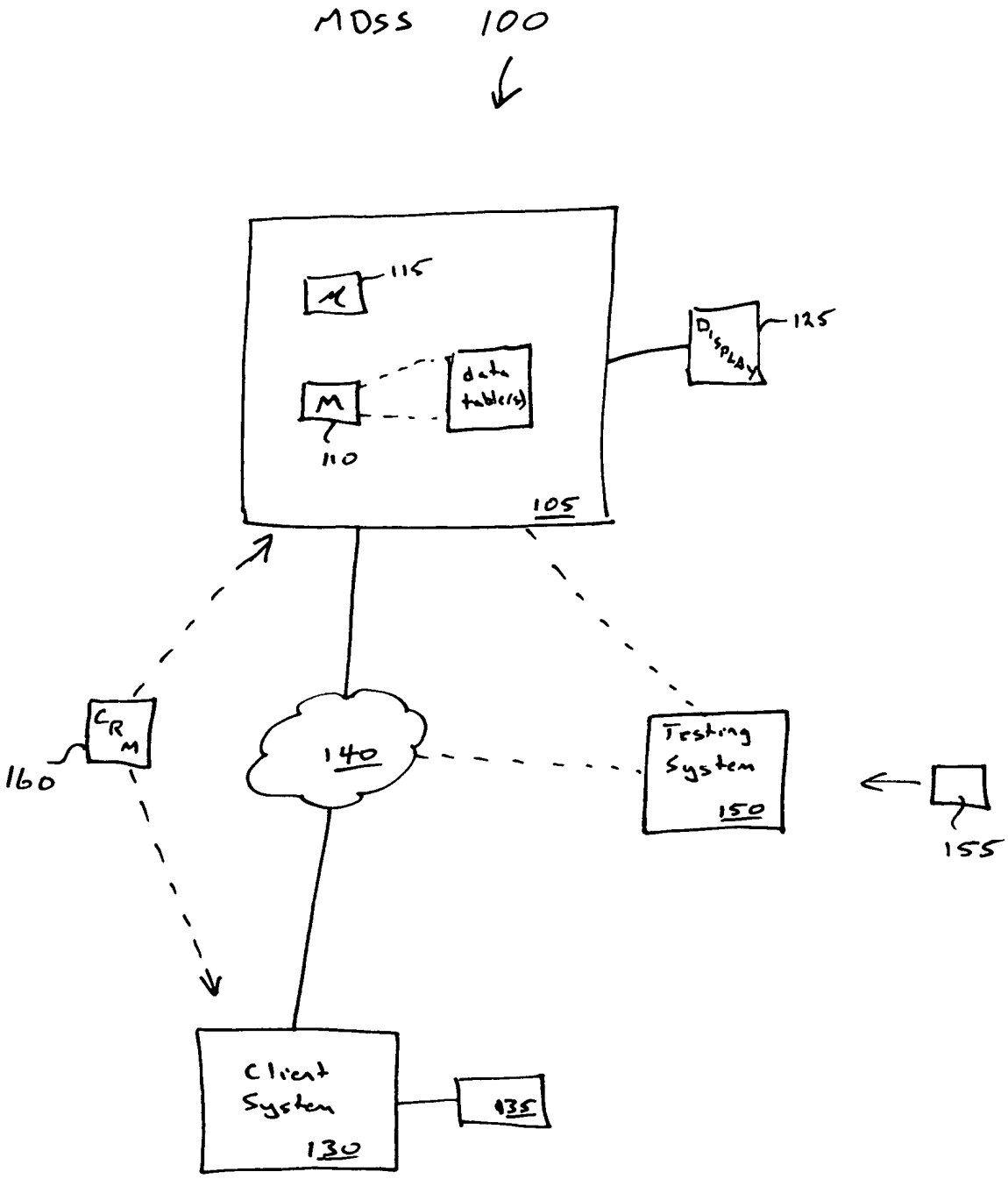
MDSS 100
115
data tablet(s)
110
105
125
Display
CRM
160
140
Testing System
150
155
Client System
130
135

FIG. 1

FIG. 2: Example of MDSS data table

Patient ID	dsDNA (IUmL)	Chromatin A.I.	Ribosomal P A.I.	Sm A.I.	SmRNP A.I.	RNP A.I.	Scl-70 A.I.	Jo-1 A.I.	SSA A.I.	SSB A.I.	Centromere A.I.	Physicians' Diagnoses
Unknown	62	>8.0	3.4	0.3	0.4	0.8	0.8	<0.2	<0.3	<0.4	<0.5	
#1	22	>8.0	3.4	0.6	0.3	0.2	<0.2	<0.2	1	<0.2	<0.2	SLE
#2	131	6.0	>8.0	0.5	1.3	0.3	<0.2	<0.2	0.5	<0.2	<0.2	SLE
#3	50	>8.0	0.2	0.2	0.3	<0.2	0.8	<0.2	<0.2	<0.2	<0.2	SLE
#4	44	7	<0.2	<0.2	0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	SLE
#5	40	7.1	<0.2	<0.2	<0.2	1.2	<0.2	<0.2	<0.2	<0.2	<0.2	NEG
#6	>400	>8.0	<0.2	0.3	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	SLE
#7	14	>8.0	0.6	0.3	0.4	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	SLE
#8	36	>8.0	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	SLE
#9	55	1.3	2.4	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	SLE
#10	43	7.7	<0.2	0.2	<0.2	1.9	<0.2	<0.2	<0.2	<0.2	0.3	NEG
#11	40	6.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	SLE

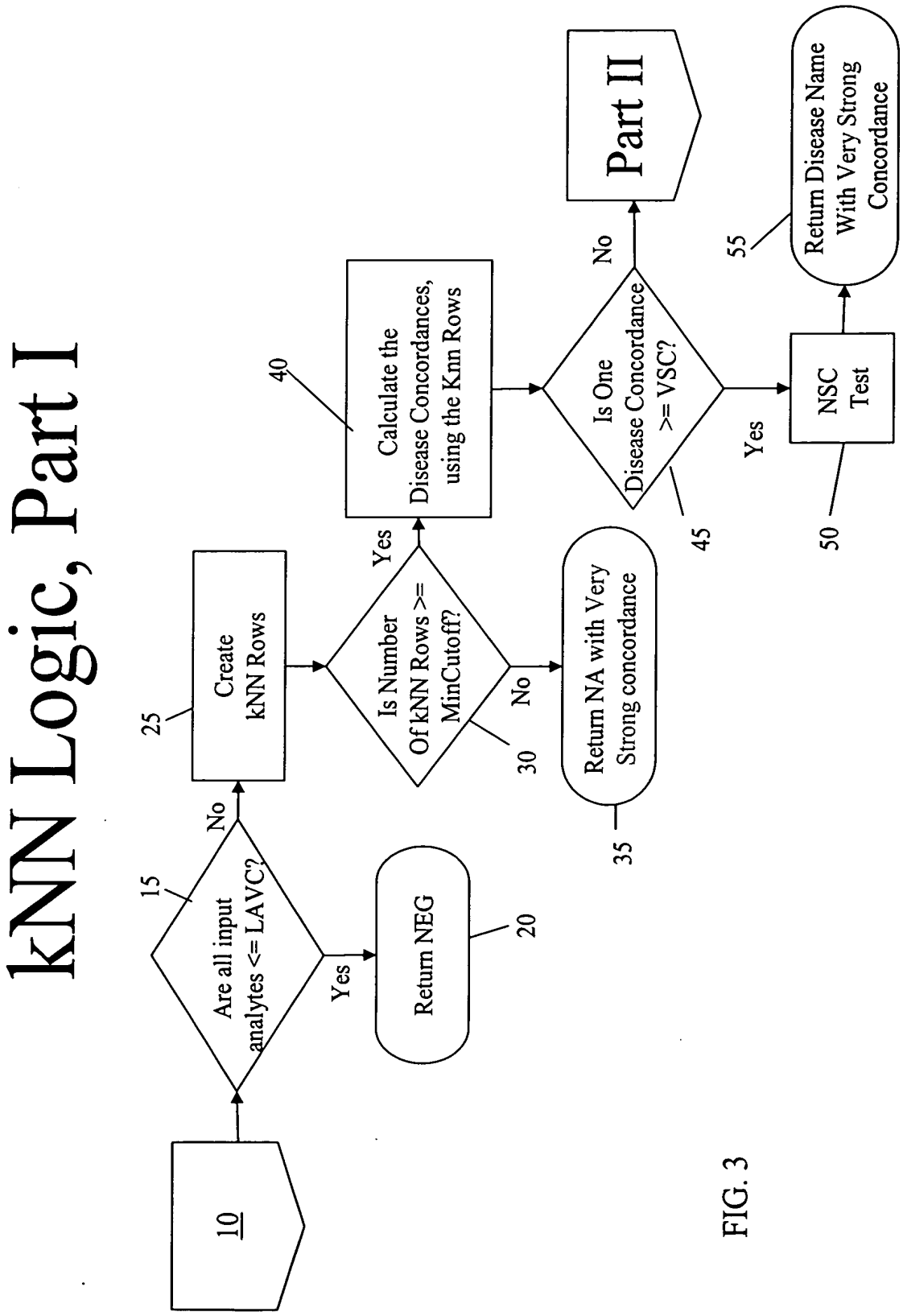
kNN Logic, Part I
10
Are all input analytes <= LAVC?
15
No
Yes
Return NEG
20
Create kNN Rows
25
Is Number Of kNN Rows >= MinCutoff?
30
Yes
No
Return NA with Very Strong concordance
35
Calculate the Disease Concordances, using the Knn Rows
40
Is One Disease Concordance >= VSC?
45
Yes
No
NSC Test
50
Return Disease Name With Very Strong Concordance
55
Part II

FIG. 3

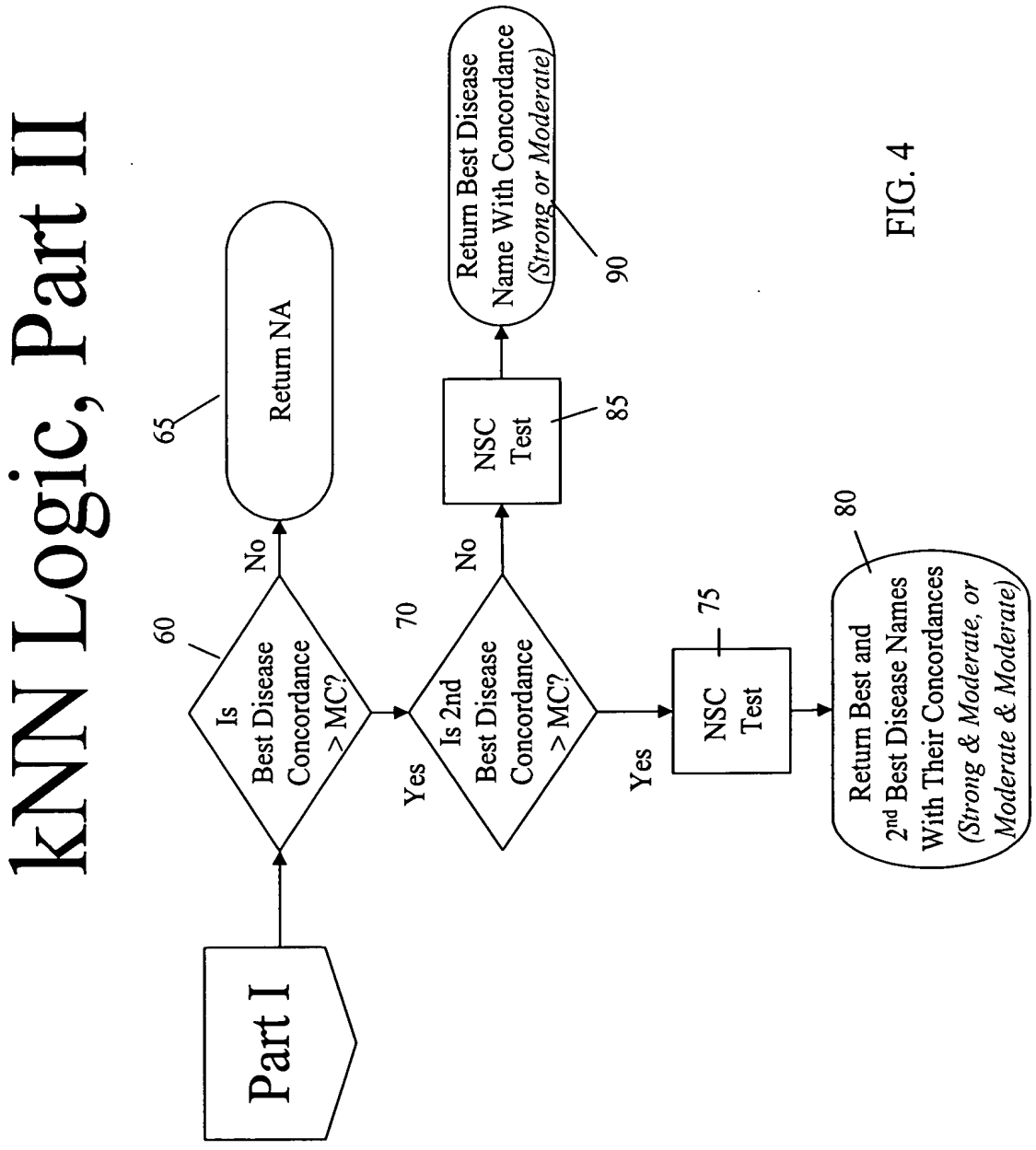
kNN Logic, Part II
Part I
60
Is Best Disease Concordance > MC?
No
65
Return NA
Yes
70
Is 2nd Best Disease Concordance > MC?
No
NSC Test
85
Return Best Disease Name With Concordance (Strong or Moderate)
90
Yes
75
NSC Test
80
Return Best and 2nd Best Disease Names With Their Concordances (Strong & Moderate, or Moderate & Moderate)

FIG. 4

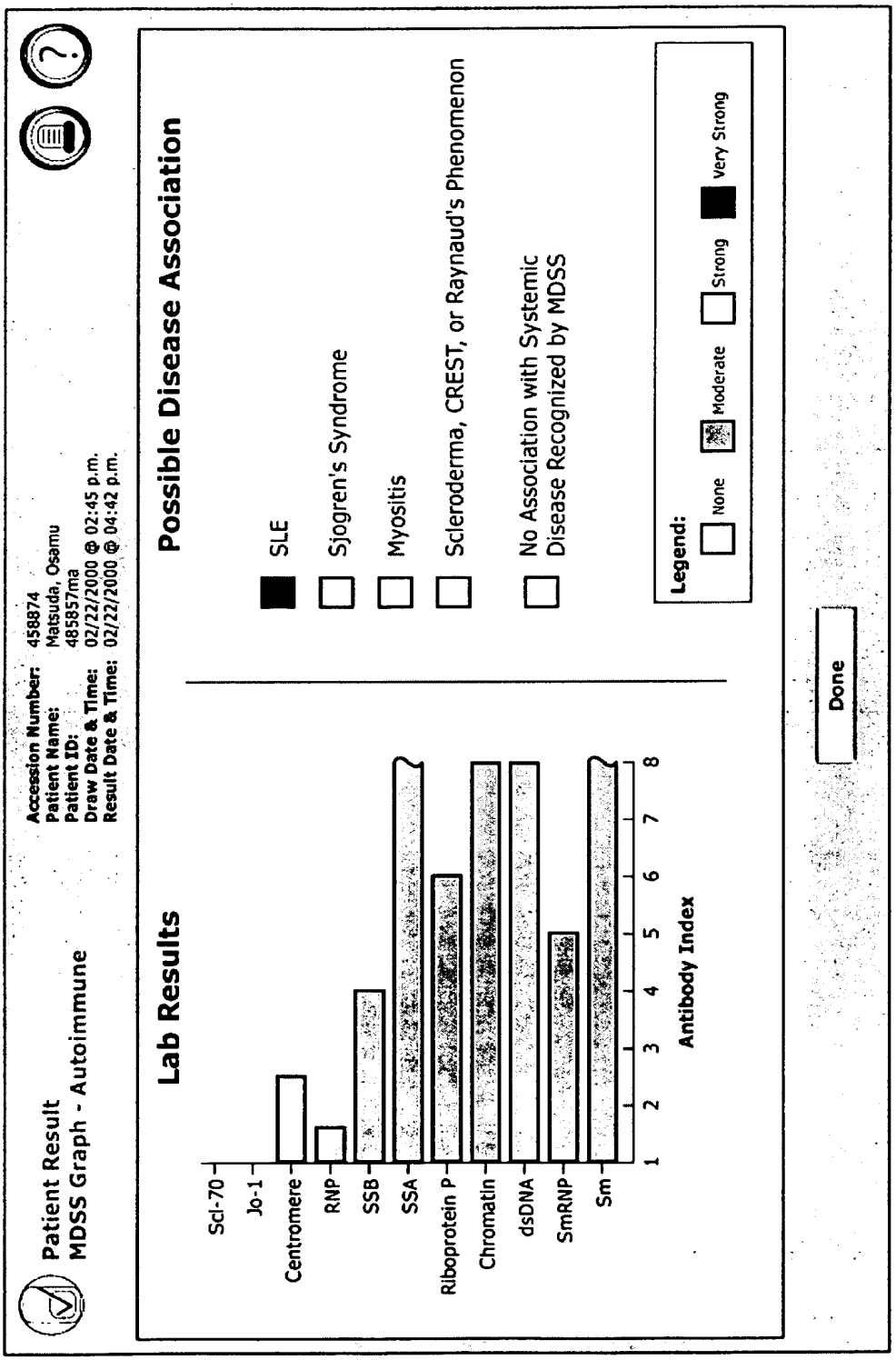
Patient Result
MDSS Graph - Autoimmune
Accession Number: 458874
Patient Name: Matsuda, Osamu
Patient ID: 485857ma
Draw Date & Time: 02/22/2000 @ 02:45 p.m.
Result Date & Time: 02/22/2000 @ 04:42 p.m.
Lab Results
Scl-70
Jo-1
Centromere
RNP
SSB
SSA
Riboprotein P
Chromatin
dsDNA
SmRNP
Sm
1 2 3 4 5 6 7 8
Antibody Index
Possible Disease Association
SLE
Sjogren's Syndrome
Myositis
Scleroderma, CREST, or Raynaud's Phenomenon
No Association with Systemic Disease Recognized by MDSS
Legend:
None
Moderate
Strong
Very Strong
Done

FIG. 5

Sample: SU015

	dsDNA	DNP	RiboP	Smith	SmRNP	RNP	Scl70	Jo1	SSA	SSB	CentB	Diag.	Specificity	Patient ID
Patient:	96.9819	97.4399	97.4399	46.0826	97.4399	4.1252	4.1252	4.1252	4.1252	7.8912	4.1252			
Row < 99>	68.7849	97.4399	76.0832	97.4399	88.9062	58.9055	4.1252	4.1252	4.1252	4.1252	4.1252	SLE	56.2922%	10128
Row < 565>	100.0000	97.4399	97.4399	17.5493	87.2086	75.3305	4.1252	4.1252	39.6587	4.1252	4.1252	SLE	55.3676%	12727
Row < 177>	100.0000	97.4399	11.3556	54.2218	97.4399	7.8912	25.4405	4.1252	32.1124	7.8912	4.1252	SLE	51.0860%	10224
Row < 135>	65.0992	97.4399	67.8925	97.4399	87.7819	68.7849	4.1252	4.1252	4.1252	4.1252	4.1252	SLE	50.8687%	10171
Row < 526>	100.0000	94.6162	4.1252	14.5631	90.0020	4.1252	4.1252	4.1252	25.4405	4.1252	4.1252	SLE	47.0424%	12111
Row < 35>	85.4418	97.4399	64.1265	11.3556	14.5631	25.4405	32.1124	4.1252	4.1252	4.1252	4.1252	SLE	46.2030%	10045
Row < 567>	39.6587	69.6594	34.1258	46.0826	97.4399	55.4411	4.1252	4.1252	4.1252	4.1252	4.1252	SLE	45.8362%	12729
Row < 136>	78.2660	97.4399	97.4399	78.2660	97.4399	30.0007	97.4399	4.1252	37.8919	4.1252	4.1252	SLE	42.8745%	10172
Row < 493>	50.3433	97.4399	64.1265	20.3426	11.3556	7.8912	4.1252	4.1252	30.0007	4.1252	4.1252	SLE	42.5440%	12065
Row < 566>	93.1321	97.4399	11.3556	72.1813	97.4399	67.8925	4.1252	4.1252	4.1252	4.1252	4.1252	SLE	42.2327%	12728
Row < 529>	50.3433	97.4399	34.1258	86.0388	72.9904	20.3426	4.1252	4.1252	67.8925	4.1252	4.1252	SLE	40.9791%	12114

Algorithm selected: SLE (100.0000%)
The expected disease was: SLE

FIG. 6